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1

Base for Cosmetic Preparations

In known cosmetic and dermatological preparations, the favorable influence of silicone oils as a pharmaceutical carrier has already been recognized. These preparations are characterized in particular by the fact that they are not toxic and hydrophobic.

The application options for specific organic silicon compounds, in particular sodiummethyl silicones, the alkylhalogen- and alkylacetoxysilanes and the silicone oil for specific cosmetic preparations, such as hair coloring agents, hair luster agents and skin care crèmes, have also already been pointed out (see "Die Umschau" [The Outlook] 1954, Volume 2, page 57; "Parfümerie und Kosmetik" [Perfumes and Cosmetics], 1955, Vol. 1, page 13/14 and Vol. 3, page 110/111, and "Chemische Industrie" [Chemical Industry], August 1953, page 613). Furthermore, it is also known to use polysiloxanes in so-called "barrier crèmes" which only have a blocking function with respect to undesired or harmful substances and cannot be compared to skin care preparations. It is furthermore known to add silicones to toothpastes (see "schimmel Briefs" No. 221, August 1953, and the British patent specification 686 429).

It has now been found that the technically accessible compounds tetraoctyl- and/or tetracetylorthosilicate can be used to a completely unexpected extent for cosmetic

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preparations in that a smaller quantity of them leads to a greater effect relative to the silicone-containing preparations, and that they can completely replace the substances vaseline and paraffin oil, which are frequently used in crèmes. A base salve with 9.4 grams of total orthosilicate, for example, is as effective as another one with 30 % silicone wax.

Cetylorthosilicate is a tetraester with the formula $\text{Si}(\text{OC}_{16}\text{H}_{33})_4$ and tetraoctylorthosilicate is the compound $\text{Si}(\text{OC}_8\text{H}_{17})_4$. These esters are produced according to the known principle of re-estrication. The orthosilicate of the alcohol with the lower boiling point is heated with the calculated quantity and a small excess of the alcohol with the higher boiling point in the presence of a trace of hydrochloric acid to a temperature that is approximately 10 to 20 °Celsius above the boiling point of the

alcohol with the lower boiling point. Practically all orthosilicates of higher fatty alcohols can be produced according to this specification.

Skincare crèmes produced with the aforementioned compounds are smoother and have a more favorable behavior on the skin than crèmes without the addition of silicate. For hair colors in crème-type production form, a reduction of the allergic or biologically less advantageous effects on the skin is obvious if the preparation contains one or both of the two aforementioned orthosilicates. Hair grooming- and hair care crèmes that contain tetraoctylorthosilicate effect a smooth and pleasant combing. This is considered a very pleasant advantage in particular by persons whose hair is treated with various crèmes, compared to the otherwise frequent pulling of the hair and the related pain. Furthermore, the means in accordance with the invention lend the hair a luster that lasts about 5 or 6 days without appearing sticky or greasy. Furthermore, a setting effect is also observed, which does not impact negatively on the fluffiness of the hair. There are other applications as well, such as integrating tetracetylorthosilicate into lipstick compounds. An increase of the hydrophobic character of skin and hair should be mentioned as a general advantage when skin and hair are treated with cosmetic preparations containing the aforementioned tetracetyl- and/or tetraoctylorthosilicates.

In summary, compared to the fatty substances, etc. used so far, the following essential advantages were observed: Physiologically-biologically safe unlike hydrocarbon substances and their mixture, not vulnerable to bacteria, unlike fats, high resistance to soaping, unlike fats, spreads better on hair and skin (forms film), clear composition, heterogeneous, and thus easier and better processing of the base compounds in the presence of the silicates, unlike in the presence of only the fats, waxes and hydrocarbons, etc.

Examples

I. All-purpose creme

- a) Tetracetylorthosilicate ($\text{Si}(\text{OC}_{16}\text{H}_{33})_4$) ... 16.9 grams
- b) Stearin 6.5 grams
- c) Glycerin monostearate 6.5 grams
- d) Tetraoctylorthosilicate ($\text{Si}(\text{OC}_8\text{H}_{17})_4$) 11.9 grams
- e) Triethanolamine 1.5 grams

a), b) and c) are melted at 70 to 80 °Celsius, d) is stirred in carefully, and the resulting compound is stirred into the equally warm solution of e) in a quantity of water required to top off to 100 grams until mixture has cooled. The orthosilicates are highly resistant to water and alkali, i.e., they cannot be hydrolyzed.

2. Base of Salve

- a) Cetyl alcohol or cetyl- and stearyl alcohol containing an acid-resistant emulsifier of fatty alcohol sulfate and lecithin phosphatides..... 11.0 grams
- b) a mixture comprised of potassium stearate, glycerin monostearate and glycerin distearate, with a melting point of approximately 57 °Celsius 4.0 grams
- c) Tetracetylorthosilicate 5.0 grams
- d) Tetraoctylorthosilicate 4.4 grams
- e) distilled water 75.6 grams

a) to c) are melted and mixed on the water bath at approximately 70 to 80 °Celsius, d) is stirred in and the required quantity of distilled water of the same temperature is added. The mixture is stirred until cooled and processed as usual.

3. Body of Lipstick

- a) White wax 150 grams
- b) Tetracetylorthosilicate 550 grams
- c) Lanoline anhydricum 50 grams
- d) Cetyl alcohol 40 grams
- e) Tetraoctylorthosilicate 100 grams

a) to c) are melted together in the usual procedure, and d) and e) are stirred in until the mixture has cooled. Processing then continues as usual.

Die Chemische Industrie, 1953, page 613

4. Hair coloring crème

The base crème is produced from wool grease (commercially available and technical product)..... 2 grams
Glycerin monostearate, containing 10 % phosphate of the diethylaminoethyl-oleylamide 9 grams
Tetracetylorthosilicate..... 5 grams
Tetraoctylorthosilicate 2 grams
Water 82 grams

The base is prepared as usual, and 20 ml of a solution containing 1.0 grams p-toluylenediamine, 0.25 grams resorcin and 3.5 ml 25-% ammonia solution are worked into 80 grams of the base.

5. Luster spray

With tetraoctylorthosilicate that is soluble in non-aqueous ethanol or isopropanol, it is furthermore possible to produce a luster spray with the help of the known monofluor-trichlormethane and difluordichlormethane as propellant.

10 grams tetraoctylorthosilicate are dissolved in 30 grams isopropanol, perfumed as desired, topped off with a mixture of monofluor-trichlor- and difluordichlor methane to 100 grams, and filled into spray cans as usual.

PATENT CLAIM:

Base for cosmetic preparations containing solid as well as liquid hydrocarbons and/or fatty substances of the general nature, characterized in that it also contains tetracetylorthosilicate and/or tetraoctyl-orthosilicate.

Printed matters taken into consideration:

British Patent Specification No. 686 429;
schimmel Briefs No. 221;
Die Umschau, 1954, Vol. 2, page 57;
Parfümerie und Kosmetik, 1955, Vol. 1,
page 13/14;